

WHAT IS CLAIMED IS:

1. An energization processing apparatus for performing, in a reduced-pressure atmosphere, an energization process on electric conductors which are 5 placed on a substrate, comprising:

a vessel which has an exhaust hole and which covers the electric conductors and one region on a surface of the substrate where the electric conductors are placed, to thereby create an airtight 10 atmosphere between the substrate and the vessel;

a first temperature adjusting mechanism for adjusting a temperature of the one region of the substrate; and

15 a second temperature adjusting mechanism for adjusting a temperature of the other region of the substrate.

2. An electron source manufacturing apparatus for energizing, in a reduced-pressure atmosphere, 20 electric conductors which are placed on a substrate to form electron-emitting regions in the electric conductors, comprising:

a vessel which has an exhaust hole and which covers the electric conductors and one region on a 25 surface of the substrate where the electric conductors are placed, to thereby create an airtight atmosphere between the substrate and the vessel;

a first temperature adjusting mechanism for adjusting a temperature of the one region of the substrate; and

5 a second temperature adjusting mechanism for adjusting a temperature of the other region of the substrate.

10 3. An energization processing method for performing, in a reduced-pressure atmosphere, an energization process on electric conductors which are placed on a substrate, comprising the steps of:

15 covering the electric conductors and one region on a surface of the substrate where the electric conductors are placed with a vessel which has an exhaust hole, to thereby create an airtight atmosphere between the substrate and the vessel;

reducing a pressure of the airtight atmosphere;
and

20 heating the other region of the substrate at a temperature higher than the temperature of the one region and energizing the electric conductors.

25 4. An electron source manufacturing method for energizing, in a reduced-pressure atmosphere, electric conductors which are placed on a substrate to form electron-emitting regions in the electric conductors, comprising the steps of:

covering the electric conductors and one region

on a surface of the substrate where the electric conductors are placed with a vessel which has an exhaust hole, to thereby create an airtight

- 5 atmosphere between the substrate and the vessel;
reducing a pressure of the airtight atmosphere;
and

heating the other region of the substrate at a

temperature higher than the temperature of the one

- 10 region and energizing the electric conductors.